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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/668,437	09/23/2003	Michael C. Kautzky	I69.12-0593	2388

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THE KINNEY & LANGE BUILDING  
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MINNEAPOLIS, MN 55415-1002

EXAMINER
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DAVIS, DAVID DONALD

ART UNIT	PAPER NUMBER
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2627

MAIL DATE	DELIVERY MODE
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05/12/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/668,437	<b>Applicant(s)</b> KAUTZKY ET AL.	
	<b>Examiner</b> David D. Davis	<b>Art Unit</b> 2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 19 December 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,3-8,10-24 and 27-29 is/are pending in the application.
- 4a) Of the above claim(s) 17-24 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-8,10-13,15,16 and 27-29 is/are rejected.
- 7) ☒ Claim(s) 14 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 3, 10-13, 15 and 16 are rejected under 35 U.S.C. 102(e) as being anticipated by Kadokawa (US 6,661,627). As per claim 1, Kadokawa shows in figure 5 a magnetic sensor including a sensor stack 1 having a physical width with a corresponding electrical width 9 and a physical height with a corresponding electrical height. Kadokawa shows in figure 3 an arrangement for providing generating an electric field in a direction generally transverse to a direction of sense current flow through the sensor stack 1 to create a charge carrier depleted region in the sensor stack 1 such that at least one of (a) the electrical width 9 is smaller than the physical width and (b) the electrical height is smaller than the physical height.

As per claim 3, the arrangement for providing an electric field comprises two bias electrodes 3 disposed on opposing sides of the sensor stack 1 such that the electrical width 9 of the sensor stack 1 is a function of a bias voltage applied to the two bias electrodes 3. As per claim 10, Kadokawa shows in figure 5 that the arrangement for providing an electric field including a bias electrode 3 positioned such that the electrical height of the sensor stack 1 is a function of a bias voltage applied to the bias electrode.

As per claim 11, Kadokawa shows in figure 5 a magnetoresistive read head includes a magnetoresistive stack 1; and a first bias electrode 3 positioned with respect to the magnetoresistive stack to generate an electric field in a direction generally transverse to a direction of sense current flow through the sensor stack 1 such that a read width of the magnetoresistive stack is a function of a bias voltage applied to the first bias electrode 3. As per claim 12, Kadokawa shows in figure 5 that the first bias electrode 3 is disposed on a side of the magnetoresistive stack.

As per claim 13, Kadokawa shows in figure 5 that a second bias electrode 3 is disposed on a side of the magnetoresistive stack opposite the first bias electrode. The first and second bias electrodes 3 each provide a voltage. As per claim 15, Kadokawa shows in figure 5 that a second bias electrode 3 disposed on a side of the magnetoresistive stack 1 opposite the first bias electrode 3. The second bias electrode 3 has a bias voltage of opposite polarity to a bias voltage applied to the first bias electrode 3. As per claim 16, Kadokawa discloses in column 4, lines 39-43 that first bias electrode is made of a material selected from the group consisting of Rh, Ti, CoPt, CoCrPt, Cr, NiPd, NiCu, Au, Pt, Pd, V, Ta, and alloys thereof.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 4-6 and 27-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kadokawa (US 6,661,627). Kadokawa discloses the claimed invention. See description supra. Kadokawa, however, is silent as to the bias electrodes being biased with positive or negative DC bias voltages or an AC bias voltage. Kadokawa is also silent as to the magneto resistive stack being a CPP stack or a tunneling magneto resistive stack.

Official notice is taken of the fact that bias electrodes biased with positive or negative DC bias voltages or an AC bias voltage and the magneto resistive stack being a tunneling magneto resistive stack is notoriously old and well known in the magnetic head art.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to provide bias electrodes with positive or negative DC bias voltages or an AC bias voltage as taught in the art. The rationale is as follows: one of ordinary skill in the art at the time the invention was made would have been motivated to provide different types of bias voltages to provide flexibility when biasing the magnetic head.

It also would have been obvious to a person having ordinary skill in the art at the time the invention was made to provide a magneto resistive stack in a magnetic head with a CPP or

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tunneling magneto resistive stack as taught in the art. The rationale is as follows: one of ordinary skill in the art at the time the invention was made would have been motivated to provide a magneto resistive stack with a CPP or tunneling magneto resistive stack so as to be able to read higher density magnetic disks.

*Allowable Subject Matter*

5. Claim 14 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

*Conclusion*

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David D. Davis whose telephone number is 571-272-7572. The examiner can normally be reached on Monday thru Friday between 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wayne R. Young can be reached on 571-272-7582. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/David D. Davis/  
Primary Examiner  
Art Unit 2627

ddd